

# PERSONAL INCOME TAX COMPLIANCE COSTS AT AN INDIVIDUAL LEVEL IN CROATIA \*

HELENA BLAŽIĆ\*\*

This paper analyzes the compliance costs of personal income tax only for individuals (non-business) in Croatia (made in 2002 and referring to the tax year 2001). It refers mostly to the “social” concept of compliance costs, but also takes into account the “taxpayer” compliance costs. It follows classical analysis from that field of the research adapted to Croatian circumstances. It is taken into account that some taxpayers fill in their tax returns during their regular working time and also that some tax returns are filled in by tax administration clerks. An attempt is also made to assess psychological costs.

Personal income tax compliance costs are shown not to be high with respect to the hours spent, total monetary value as well as the psychological costs. The cash flow costs are relatively high.

Keywords: tax compliance costs, personal income tax, Croatia

## 1. Introduction

Taxation compliance costs have, in the last twenty-five years, been the subject of growing interest, especially in developed countries – on the part of both academics and governments. Still, research of that kind is very rare in the transition countries,

---

\* This research was supported by a grant from the CERGE-EI Foundation under a program of the Global Development Network. Additional funds for grantees in the Balkan countries have been provided by the Austrian Government through WIIW, Vienna. All opinions expressed are those of the author(s) and have not been endorsed by CERGE-EI, WIIW, or the GDN.

Additional funds were provided by the Institute of Public Finance, Zagreb, Croatia – the institution that have conducted the project «Administrative and Compliance Costs of Taxation in Croatia». This paper is part of that project.

We use the opportunity to thank Marsha Blumenthal, Consuelo Diaz, Jeffrey Pope and Maarten A. Allers for being so kind to provide us with their questionnaires as well to thank Marsha Blumenthal, John Hasseldine and Binh-Tran Nam for their help in solving some methodological doubts.

\*\* Faculty of Economics, University of Rijeka, Croatia

mostly because it requires complicated investigation involving the collection of large amounts of data not available from published sources, but also because the problem has been simply neglected.<sup>1</sup>

Compliance costs can be divided and assessed at a business as well as at the individual level.

This paper focuses on personal income tax at the individual level – the compliance costs connected with filing personal income tax returns in 2002. Research concerned with filing personal income tax returns is common and relatively frequent in tax compliance costs research (for example Slemrod, Sorum, 1984; Sandford, Godwin and Hardwick, 1989; Vailancourt, 1989; Blumenthal and Slemrod, 1992; Allers, 1994; Pope and Fayle, 1990; Blumenthal and Slemrod, 1995; Diaz and Delgado, 1995; Malmer, 1995; Evans, Ritchie, Tran-Nam, Walpole 1997; (also in: Evans, Ritchie, Tran-Nam, Walpole, 1998; Tran-Nam, Evans, Ritchie, Walpole, 2000); Delgado Lobo, Salinas-Jimenez J., Sanz Sanz, 2001; Klun 2002). Like, for instance, Evans, Ritchie, Tran-Nam and Walpole (1997) and followed later by Klun (2002), we have decided to look solely at individuals (non-business units) filing personal income tax returns, that is, to exclude business units that pay personal income tax.<sup>2</sup>

As usual, compliance costs are defined as the costs incurred by taxpayers in meeting the requirements laid on them by the law and revenue authorities, over and above the actual payment of tax and over and above any distortion costs inherent in the nature of the tax (Sandford, 1995, p.1). The “classic” elements (sorts) of compliance costs have been included: own time, unpaid help, fees paid and other money costs, taking into the consideration specific institutional characteristics of Croatia. That is, fees are paid very rarely because the institution of tax adviser is not developed in Croatia; consequently it is even possible that the tax administration itself acts as unpaid help(er), fillings in the form on behalf of the taxpayer – above and

---

<sup>1</sup> The comparative study of three countries (Institute for Private Enterprise and Democracy, Poland; Institute for Market Economics, Bulgaria; Institute for Liberal Studies, Slovakia) should be mentioned here treating the need for deregulation of the tax system. This study addresses the problem of compliance costs of taxation as the result of its complexity, but treats the problem of the compliance costs only implicitly (without measuring them).

In Slovenia too (Klun, 2002) this problem has been recognized and partially measured (only concerning VAT and the personal income tax of individuals). The reasons for the lack of such a research in Croatia are explained in Ott and Bajo, 2001, p. 230-235).

<sup>2</sup> Their compliance costs regarding all the relevant taxes are assessed in another part of the above stated project.

beyond its role as “information provider”.<sup>3</sup> Furthermore, it is not uncommon to fill in the tax return during regular working hours, because unpaid help can often be derived from experienced business colleagues (accountants, etc.)

The main purpose of the research was to get an insight into the scope and structure, as well as specific characteristics of personal income tax compliance costs regarding level of income as well as the number of sources, education, gender and age. Both the “taxpayer” and the “social” costs of compliance have been calculated, an attempt also being made to include cash-flow costs and benefits. An endeavour has also been made to assess the psychological costs of compliance.

The main hypotheses to be tested were:

- the compliance costs of individuals filing personal income tax are relatively low - not only in terms of their share in GDP or in personal income tax (which is expected since not all taxpayers are obliged to file the personal income tax return), but also in terms of their costs per individual: especially costs of time
- the use of unpaid help is widespread
- compliance costs are regressive in respect of income
- psychic (psychological) costs are not high

The paper begins with a very short explanation of the basic characteristics of personal income tax in Croatia relevant for compliance costs. After that, the methodology is explained, including the sample, the questionnaire, the survey, as well as time valuation. The main part of the paper is, of course, devoted to the results concerning the characteristics, structure and scope of the compliance costs, as well as the psychological costs.

## **2. The Basic Characteristics of Personal Income Taxation in Croatia Mostly Relevant for the Tax Compliance Costs**

Croatia has just moved from a “consumption based” personal income tax (in the form of a wage tax with capital income excluded, but with income from “property”

---

<sup>3</sup> The help of the tax administration (Ministry of Finance, Tax Agency - Revenue Service) was, for instance, also explicitly mentioned in the Spanish studies (Diaz, Delgado, 1995, p. 215 and Delgado Lobo, Salinas-Jimenez and Sanz Sanz, 2001, p. 468)

included) to an “income based” tax. The new personal income tax (starting from the year 2001) is a hybrid form between the income model and the consumption model, with a lot of capital income excluded from the tax base, as in other transition countries. The main exempt incomes are: interest from bank deposits and securities, capital gains (with the exception of real estate), pension income from abroad, various social transfers, insurance receipts (with the exception of the life and voluntary retirement insurance receipts if the premiums have been exempted from taxation because the taxpayer has used them as tax allowances). The tax returns made in 2002 (for the tax year 2001) did not include dividends (and other earnings from shares in capital) either, because their taxation started in year 2002.<sup>4</sup>

The biggest advantage of Croatian personal income tax, from the compliance costs point of view, is that most taxpayers do not have to submit an annual income tax return to the tax authorities, because the bulk of the taxes is collected by withholding, which is final in most of the cases. Wages and salaries as well the pensions are taxed by withholding using the same technique (bands, rates and basic and family tax allowances (personal exemptions)) as in the case of personal income tax in general. That means that taxpayers who receive a wage/salary only from one employer and have no other income do not have to submit income tax returns. The same is true for pensioners, most of them paying effectively no tax at all because of the low pensions and higher basic tax allowance (personal exemption, called “personal allowance” in Croatia). A lot of other withholding taxes can be final.

The taxpayers *may* submit an income tax return if it suits them – in cases where they are entitled to a tax refund.<sup>5</sup> Examples of this include: a salary/wage which is not paid out (and consequently not taxed) every month, which results in unused personal tax allowances, other cases when personal tax allowance(s) are unused, evidence of higher expenses than the lump-sum expense allowed when the withholding tax is applied, higher withholding rates than the actual marginal tax rate, use of tax reliefs (in the form of deductions – allowances) for charitable contributions,

---

<sup>4</sup> Dividends paid out in the year 2001 refer to the year 2000 (in which the profits were made).

<sup>5</sup> So, withholding taxes are in effect optional and might be final at the choice of the taxpayers. This implies that mostly lower incomes (with lower marginal tax rates than the withholding tax rates or even with the not fully used personal exemption (basic tax allowance and allowance for dependent family members, called «basic personal allowance» and «allowance for dependent family members» in Croatia)) will tend to submit a tax return in cases where withholding taxes are linear.

life insurance/additional (voluntary) health insurance/pension insurance premiums (newly introduced)...

In some cases, taxpayers *must* submit a tax return. Of course, this is in the case of income from self-employment (business units that are not legal persons but physical persons) in the form of crafts and trades (in a broader sense) and freelance occupations<sup>6</sup>, but, as already stated, this is excluded from our research. The other cases include only income from rental or lease of movables and immovables (real-estate), income from abroad and wages/salaries from several employers.

As a result of this, around one quarter of the taxpayers submits annual income tax returns. Their compliance cost activities during the year are negligible, because the payers of their incomes supply them with all the necessary receipts just before the period for the submitting tax return<sup>7</sup>. This also means that a lot of these costs are borne by the employers and other income payers: first, because of the tax withholding and secondly, because of the receipts issued for the purpose of individual annual tax return filing.

### **3. Methodology**

#### **3.1. Survey and sample**

The research was carried out by an interview survey (face to face). A postal survey was rejected after consultation with the other researchers and experts in Croatia, because of the very small response rate in Croatia. The commercial polling agency strongly advocated an interview survey also, partially because of the very high postal costs in Croatia. Furthermore, interviews guarantee better understanding of the stated questions and more reliable results. Unfortunately, they are, of course, more expensive.

The timing of the research (March-April 2002) was the best possible for the tax-filers still to remember their tax returns data (the personal income tax return for the previous year is filed in February and should be submitted by the end of that month<sup>8</sup>).

---

<sup>6</sup> Also income from agriculture and the rental of flats and rooms to tourists, if the VAT is charged in both cases.

<sup>7</sup> One of the important exceptions being income from rental or lease (but not for tourists), the tax for which is paid by the owner in monthly installments directly to the revenue service.

<sup>8</sup> Most people do this job in the last week of February.

A random sample, which had been not stratified, was chosen, which is common for this type of survey. It was based on the preceding year's data (for 2000<sup>9</sup>) from the Tax Administration (taxpayer registry) about personal income tax filers and presented the big problem for the interviewers, because a lot of taxpayers did not file a tax return in this year.<sup>10</sup> In order to get the final sample of 300, three times more (900) names were extracted<sup>11</sup>, but this turned out to be too small, so additional 900 addresses and names were asked for.

The final sample amounted 300 persons as planned. It is about 0.05456% of the above stated population (549,546), which is above most similar surveys in the world.<sup>12</sup> Although the sample was not stratified, tax filers were interviewed across the whole country, roughly taking into account the proportion of personal income tax filers in the different regions (according to the data for the previous year (2000)). This was not even necessary, because there was later definitely no relationship established between regions and tax compliance costs.

The preliminary analysis, which was done in June 2002 on the unweighted data, showed the existence of statistically significant relationships concerning income, gender, age and education. So, after the personal income tax returns data were collected and processed, we asked the Tax Administration at the end of the year for assistance with the data concerning the above mentioned characteristics (not including educational level, which can not be obtained through the tax return data) in order to weight our sample.

There were a few too many women in the initial sample. The youngest tax filers were mostly underrepresented (all under 40 were underrepresented) and the oldest were mostly over represented (all above 40 were over represented). Unexpectedly, the traditional under representation of the lowest and highest income groups was not evident.

---

<sup>9</sup> The tax returns in February 2002 refer to the tax year 2001. So, the only possible data refer to the year 2000 (tax returns for 2000 were surrendered in 2001 and processed by the end of that year, including even the beginning of 2002)

<sup>10</sup> As already explained in the former chapter, in Croatia most taxpayers do not file income tax return at all. So, stratification was not even possible, because the final data about the population were known at the end of the year.

<sup>11</sup> As it is usual practice of the chosen commercial polling agency (PULS).

<sup>12</sup> Only Allers, among 13 compared compliance costs researches of personal income tax, had the higher percentage (0.09%). For the international comparison see Klun (2002, p.779)

### 3.2. The Questionnaire

After having studied some existing questionnaires, either published (Slemrod and Sorum 1984, appendix; Sandford, Godwin and Hardwick, 1989, p.241-244) or obtained from earlier researchers on the subject<sup>13</sup>, the first version of the questionnaire was drawn up. This version was discussed with some ordinary tax filers in order to avoid any possible misunderstandings as well as with the questionnaire experts from the polling agency. The final version was accompanied by two sets of instructions for interviewers. In the first one the term “compliance costs” was explained and the purpose as well as the importance of the research were stressed. In the second one the questions were explained in detail. Of course, these were followed by the training seminar for the interviewers.

The introductory part of the questionnaire is devoted to a short explanation of the social importance of the research, the definition of problem, the guarantee of anonymity and the sampling technique. The town and region were stated here as well as the name of the interviewer, survey number, starting time of interview and date.

The questionnaire is divided in three sections.

The first one comprises general data: gender, age and education.

The second one forms the central part of the questionnaire: data about the compliance costs. Taxpayers were asked who had mostly filled in their last income tax return, about the amount they had possibly paid for it, about their own time spent and about the time of any unpaid help. Considering their own time spent, the possibility of filling in the income tax return during regular working hours was taken into account, which is not unusual in Croatia and is connected with unpaid help that can be derived from some experienced business colleague. This is specific for this type of research.<sup>14</sup> An attempt was made to assess the psychological costs using the “classical” question about how much taxpayers would be willing to pay to get rid of all the care and compliance costs of making their income tax return (Sandford, 1973; according to Sandford, Godwin and Hardwick, 1989). The scope of these costs was also assessed by asking taxpayers how they felt after they had submitted their income tax returns.

---

<sup>13</sup> We use this opportunity to express our gratitude to Marsha Blumenthal, Consuelo Diaz, Jeffrey Pope and Maarten A. Allers for being so kind to provide us with their questionnaires.

<sup>14</sup> The time valuation is explained in the following chapter.

The second part of the questionnaire was also used to assess the effects of tax reform especially relevant for compliance costs and some general questions about the income tax system considering its burden and structure were put too. These results will not be analyzed in this article.

The last part of the questionnaire was about personal income tax data of the relevant taxpayer (income sources, tax due and amount of taxable income).

### **3.3. Time valuation**

Time valuation is one of the trickiest issues in personal income tax compliance costs research. There is no universally accepted method and that is why it is very hard to compare different investigations of the subject.

Pope (1995, p. 115-118) summed up six methods used: each individual's own valuation of time (Sandford, Godwin and Hardwick, 1989), the former subject to a maximum rate, what taxpayers would pay to be rid of all compliance costs (Sandford, 1973 and later Slemrod and Sorum, 1984)<sup>15</sup>, the usual hourly wage rate before tax (Vaillancourt, 1986 and 1989), the after-tax wage rate (Slemrod and Blumenethal, 1992)<sup>16</sup>, the median value of time (reported values) (Pope, Faye and Duncanson (1990; according to Pope, 1995). Even this long list does not exhaust all methods used. So, for instance, Diaz and Delgado (1995, p.213-214) as well as Delgado Lobo et al. (2001) used the average income declared by taxpayers, corresponding to their principal source of income; Malmer (1995, p. 242, 258) used the average salary for employed persons in Sweden (net (after tax), before tax and gross (including social security contributions); Allers (1994, p.54-55, 147 and 1995, p. 186) used GDP per labor year (which was originally used in 1989 by Bannock and Albach).

After taking into consideration all the methods reviewed and the underlying assumptions, we decided to use the "marginal" after-tax wage rate<sup>17</sup>, based on the

---

<sup>15</sup> The same method was applied, for instance, in Sweden by Malmer (1995)

<sup>16</sup> After-tax wage rate (after tax reservation wage) was also chosen, but using different methodology, by Evans et. al. (1997, p. 10 and 21-21; based on previous research in 1995); it was used previously also by Slemrod and Sorum (1984).

<sup>17</sup> These taxpayers really stated that they have filled in the income tax return during their free time and it is realistic to assume that they substituted it for leisure and not additional work (it should be also remembered that the self-employed with completely flexible working times are almost entirely excluded from the survey).



methodology of Blumenthal and Slemrod described (1995, p.150-151)<sup>18</sup>. Since it is usual for Croatian taxpayers to think in after-tax terms<sup>19</sup> the question was stated about how much the taxpayers would be paid (after tax) for an additional hour of work (if they could increase their income by choosing to work more hours). An additional question was about the smallest hourly pay rate, that would induce people to accept an opportunity to work more hours (in the case that they do not have possibility from the previous question). Before these two questions the question about the (taxpayer's own average) net wage per hour<sup>20</sup> was put.

The mean net wage per hour was astonishingly representative. It amounted to 19.34 Croatian Kunas (HRK) - around 3 USD, and the average net wage per hour for the February of 2002 was 19.77 HRK.<sup>21</sup> The answers to the first question about marginal after-tax rate are astonishing again - exactly double that amount (mean 38.60). This is in accordance with the overtime (gross) wage rate, which is, according to the law, double the ordinary wage rate.<sup>22</sup> The answers to the second question are only slightly lower (mean 37.27). 23.67% of people gave an answer neither to the first nor to the second question about the marginal after-tax wage rate, which is rather successful (this percentage was 46% at Slemrod, Sorum (1984, p. 15) and 46.5% at Blumenthal, Slemrod (1995, p. 151)). Unfortunately, we were not able to establish a wage equation in order to impute a wage rate. We have simply taken the stated net wage per hour, recalculated it into monthly net salary and gross salary and made standard calculation about overtime work<sup>23</sup>.

The third cited method by Pope (what taxpayers would pay to be rid of all compliance costs) was used too in order to get some insight into the psychological (psychic) costs of tax compliance. This cost was also assessed implicitly by asking taxpayers how they felt after submitting their tax return.

---

<sup>18</sup> See also Slemrod and Sorum, 1984, p. 15-16.

<sup>19</sup> Due to the fact that the withholding technique is always very close to the real tax calculation procedure and very often final or the ultimate marginal tax rate is known

<sup>20</sup> Since it is not common to think in terms of wage rate per hour, people were suggested to divide their monthly net wage by 177 hours (if they are employed full-time).

<sup>21</sup> Average net monthly wage/salary of 3,500 HRK divided with 177 working hours (Central Bureau of Statistics, p. 32, Table 5-6).

<sup>22</sup> Of course, some people can earn even more than double and this drives the amount up. On the other hand, the higher income tax rate drives all these amounts down a little bit.

<sup>23</sup> Gross salary was calculated per hour, doubled, employee's social security contributions and personal income tax subtracted (taking into consideration local surtax and relevant marginal tax rate). In calculating gross salary from net we assumed tax allowance for one child and no tax allowance for the spouse, which is average for Croatia.

As already stated, some people (still a big minority) fill in their income tax return during their working hours. Here, the net wage rate was recalculated into gross wage rate<sup>24</sup> with the employer's social security contributions added in order to get to the full labor time costs<sup>25</sup>. Some people claimed that they had filled in partially during working hours and partially during their free time. The division of time was assumed to be half-and-half and both methods of time valuation were used on the half-half bases.

A special problem is what value to put on unpaid helpers' time. Only in cases where some unique average measure for all taxpayers is used (for instance before or after tax average salary per hour or GPD per labor year) does this represent no problem, because the same wage rate that is attributed to taxpayers can be attributed to unpaid helpers (for instance Allers, 1994).<sup>26</sup> In cases when taxpayers state /assess their own value of their time, the most correct method would be to include the unpaid helpers into the survey too, asking them the same question, but this turns out to be too complicated and costly.<sup>27</sup> The second best solution is to base the value of unpaid help on taxpayers' personal valuations (Evans, et. al, 1997, p. 11 and 21; used by the same authors in 1995; they followed the model established by both Sandford<sup>28</sup> and Pope). Some researchers did not use the responses to the unpaid assistance question, that is, they did not include this time in the time costs (omitted its valuation) (Slemrod,

---

<sup>24</sup> Using the standardized formula to convert net wages into gross wages, taking into account the town where the interview was done (because of the local surtax rate). Tax allowance for only one dependent person (child) was assumed.

<sup>25</sup> Although this was done during working time, it can be argued that this was not done at the expense of their employer. Following the logic first expressed by Yochum (1961; acc. to Sandford et al. 1981, p. 21) concerning overhead costs being zero, the same can be applied to time spent by workers (Sandford, et al., 1981, p. 22). «If existing staff could have worked harder in any case, tax work is simply taking up the slack in excess staff capacity at zero cost». The same could be even truer for the tax compliance for private reasons (personal income tax return). They may have simply worked more intensely on their regular tasks of that day, so that the cost for employer of the filling in of the tax return during working hours could be zero. Again, since workers work harder, there is still some «cost» for them.

In the end, it is worth mentioning that two methods of calculating time spent (during the free time, during the working time) yield similar results, since both aggregate labor costs per hour as well as net overtime wage per hour are almost double the net wage per regular working hour.

<sup>26</sup> But in the case of Sweden (Malmer, 1995), a different methodology for estimating the amount of unpaid help was used. Here, the taxpayers were not asked about the unpaid help they had received, but about the unpaid help they had given to the others.

<sup>27</sup> To our knowledge, nobody used such a method for this type of research.

<sup>28</sup> But Sandford neglected unpaid help in his studies (Sandford, Godwin and Hardwick, 1989)

Sorum 1984; Blumenthal, Slemrod, 1992)<sup>29</sup> or even did not pose the question of the time of the unpaid helpers (Diaz, Delgado, questionnaire).<sup>30</sup>

We decided that unpaid help is too important to be omitted. This is especially true, because there is still no developed institution of tax advising in Croatia and due to this fact, unpaid help from different sources gains in importance. This is also why tax administrators to whom the returns are submitted sometimes provide help beyond their regular working tasks (filling in returns instead of taxpayers). This specific characteristic of the Croatian income tax system should also be taken into account.

We decided to value one hour of unpaid help of all other persons (other than tax administrators) as overtime work (marginal after-tax wage rate) on the basis of the average gross earning (wages and salaries) in Croatia in February 1992 (Central Bureau of Statistics, p. 32, Table 5-6)<sup>31</sup>. It amounts around 38 HRK per hour. We are aware of some serious disadvantages of this measure. First, official statistics does not include salaries and wages paid out in business entities that are not legal persons (personal income tax payers) and which are in general formally lower, but in effect even higher due to the fact that they are almost regularly underreported<sup>32</sup>. Second, it is reasonable to assume that the unpaid helpers are higher educated and consequently earn a little bit more than average. Unfortunately, only very old data in the official statistics exist (for 1999) and they relate only to the net earnings. In the end, it is possible that some of the unpaid helpers filled in the income tax returns during their working time.<sup>33</sup>

In cases where the income tax return was filled in by the clerk of Tax Administration, the same calculation was<sup>34</sup> applied as when people fill in returns during their working time. The average gross wage in the Tax Administration for the relatively higher level of education (non-university college degree) of 4,220 HRK (the

---

<sup>29</sup> Even Vaillancourt seems not to report/include the value of unpaid help (Vaillancourt, 1989).

<sup>30</sup> Instead of that they asked the taxpayers whether they had had some non monetary costs as a form of compensation for unpaid help (gifts, invitations, etc..)

<sup>31</sup> The calculation: average gross earning in February of 5,071 is divided by 177 hours; the resulting wage rate is doubled (overtime work) and employees' social security contributions (20.6%) and personal income tax deducted; personal income tax is calculated taking into consideration only the marginal tax rate of 15% (this is the highest rate for average earnings assuming only these hours as overtime work), since personal allowances are already used; local surtax is calculated according to the town of the taxpayer – it is assumed that both are in the same town.

<sup>32</sup> To avoid the burden of high social security contributions.

<sup>33</sup> For the further discussion concerning this problem, but also its ultimate irrelevance see footnote 25.

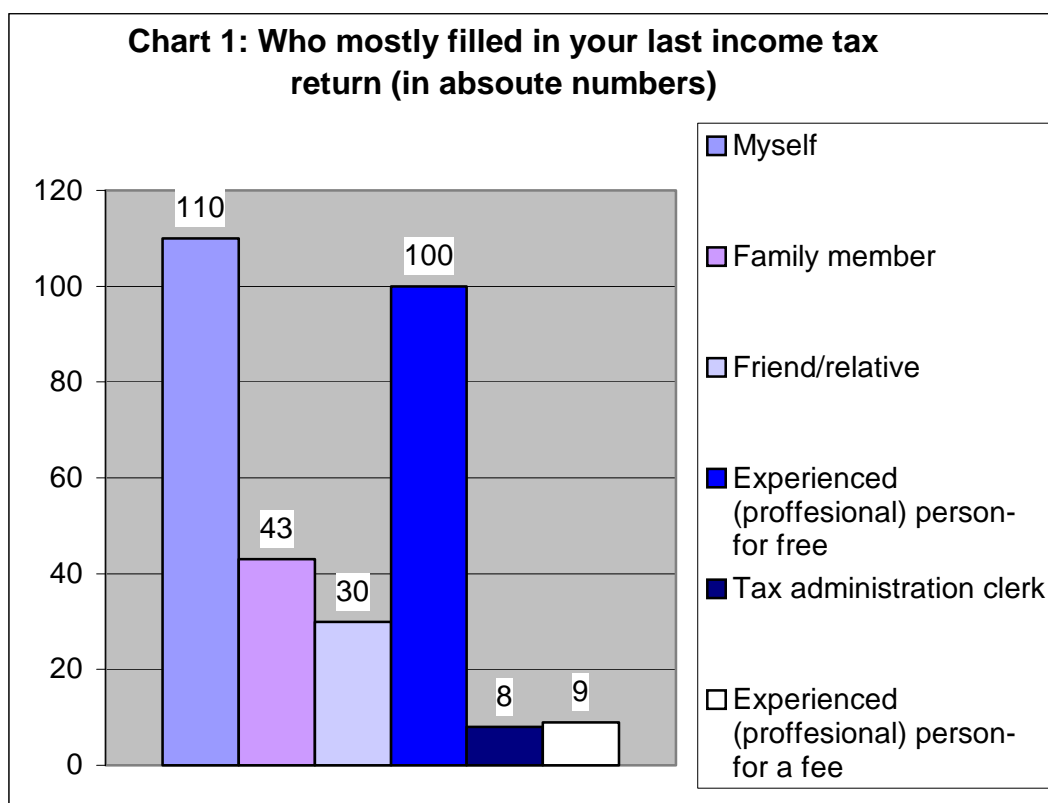
<sup>34</sup> With the same resulting doubts

data obtained from the Tax Administration accounting department) was used,<sup>35</sup> which resulted in the sum of 28 HRK per hour.

#### 4. The results

##### 4.1. The way of filling in the tax return

This is about whether the taxpayers have filled in tax return on their own or used external help as well as the kind of help, if any. The results are briefly summarized in Chart 1.



As can be seen from the graph, only one third of the taxpayers fill in their tax returns on their own.

Unlike in other (developed) countries the use of paid professional services (tax adviser, accountant) is very rare. The reason for this is the non-existence of authorized tax advisers. There is a new law that introduced this institution in the Croatian economy, but so far nobody had passed the official exam. Even now, there are very few official and authorized tax advisers. Accounting offices (firms) do offer such services but mostly for business units and not individuals.

<sup>35</sup> It should be mentioned that this is under the average earning.

So, concerning the help of the other persons, people rely heavily on unpaid help (family members, relatives, friends, and mostly business colleagues and partners).

Age, sex and education level seem to influence the way the tax return is filled in (alone or using somebody else). There is a statistically significant relationship between the way of filling in the tax return (alone or using somebody else) and age, but only for women (Chi-Square test,  $p < 0.01$ ). Younger women (under 30) mostly engage somebody else and elderly women fill in more on their own. There is no such significant relationship for men as well as no statistically significant relationship between gender only and the way of filling in, although women do fill in a little bit more on their own.

There is also a statistically significant relationship concerning the level of education (Chi-Square test,  $p < 0.01$ ). As the education level rises, the percentage of people who fill in on their own rises too (and, vice versa, the percentage of the taxpayers using external help falls). This is in accordance with the results of similar researches (for instance Diaz, Delgado, 1995 and Delgado Lobo et al., 2001).

#### **4.2. Time spent**

The mean time that the taxpayer spent on all the activities connected with personal income tax compliance whether or not he filled in the tax return on his own is 1.70 hours<sup>36</sup>. This is considerably less than in most other (developed) countries, where such research was undertaken,<sup>37 38</sup> but astonishingly in accordance with the only transition country, where, to our knowledge, such a survey was carried on – in Slovenia, where the mean amounts to 1.73 hours (Klun, 2002, p.787).

---

<sup>36</sup> In our research we have recalculated hours and minutes into hours. So, 1.7 hours is around 1 hour and 42 minutes.

<sup>37</sup> Since researches in most other countries, with the exception of Australia (Evans, et. al., 1997), included all personal income tax payers (with the self-employed – business units included), separate data about income tax payers without self-employed have to be searched for or recalculated (for USA: Blumenthal-Slemrod, 1995, p. 153; for UK: Sandford et.al. 1989, p. 71-73; for Spain: Diaz, Delgado, 1995, p. 217; for Canada: Vailancourt, 1986, p. 205, for Netherlands: Allers, 1994, p. 148 and 156).

<sup>38</sup> Sweden is the exception, for instance, with 1 hour and 42 minutes (Malmer, 1995, p. 240); the research was undertaken in 1993.

Of course, the taxpayers who filled in their tax return on their own spent on average more time (mean = 2.15 hours). On the other hand, even the taxpayers, who engaged somebody else to fill in their tax return spent relatively a lot of time on average (mean = 1.44 hours). That implies that they have mostly actively cooperated with the person who helped them (they were filling in the tax return together), since the other activities in principle do not exhaust so much time.<sup>39</sup>

The Table 1 shows the taxpayers' distribution concerning stated time.

Table 1: Tax-filers distributed by time spent on personal income tax compliance  
-in %

Time \ Group	All	Filled in on their own	Used somebody else
≤ 0,5 hours	48.33%	46.36%	49.83%
> 0,5 ≤ 1 hours	21.67%	20.91%	21.71%
>1 ≤ 2 hours	14.00%	14.55%	13.42%
>2 ≤ 5 hours	9.33%	10.00%	8.98%
>5 ≤ 10 hours	4.67%	6.36%	4.55%
>10 hours	1.78%	1.82%	1.52%

Note: around 11% of the first group (all) and 16% of the third group (used somebody else) spent no time at all

As can be seen from the Table 1, time is unevenly distributed among the taxpayers with almost the half of the taxpayers in each "category" spending half an hour or even less.

Similar surveys have analyzed the "regressive effect" that comes out when the time spent is valued (in monetary terms) with money costs added and then compared with the income. The costs rise with income (mostly because of the rise of the value of hour<sup>40</sup>), but costs per unit of income (the middle of the stated income class is taken) fall. Before doing such a form of analysis for the monetary values, we tried to do a similar analysis for the natural values (hours).<sup>41</sup>

<sup>39</sup> All the necessary receipts are already ready made and sent by the relevant subjects and the form can be sent by post. On the other hand, it is not to be expected that this group of tax filers spends a lot of time studying the necessary literature.

<sup>40</sup> In surveys where the time valuation is in some way positively correlated with the taxpayer's income (for instance Vaillancourt, 1986; Bumenthal, Slemrod, 1992), but even in the surveys where some sort of average measure applicable to everybody's hours spent is taken into account (Allers, 1994) the hours spent can be positively correlated with the income.

<sup>41</sup> We have in general tried to do as much analysis as possible using the hours instead of their monetary equivalent (value), because of the problems associated with the proper valuation of time (there is no scientific consensus about it).

As can be seen from the Table 2, with the exception of the second income class<sup>42</sup>, the mean number of hours does not change very dramatically. The absence of positive relationship between income and hours spent can be explained by the already stated fact that most capital incomes (applicable mostly as additional incomes for higher income categories) are not taxed in Croatia at all (capital gains, most interest incomes) or were still not taxed that year (dividends) or were taxed by the final withholding tax (part of rental income). So, the strong regressive effect (expressed here as average number of minutes per thousand units of income - last column of the Table 2) is obviously expected.

Table 2: Income distribution and time spent

Income class (in HRK)	Mean hours	Hours/incomex1000	Minutes/incomex1000
Under 10,000	1.31	0.26	15.71
10,000-30,000	2.47	0.12	7.41
30,000-50,000	1.50	0.04	2.25
50,000-70,000	1.27	0.02	1.27
7,000-100,000	1.30	0.02	0.92
Over 100,000	1.69	0.01	0.88

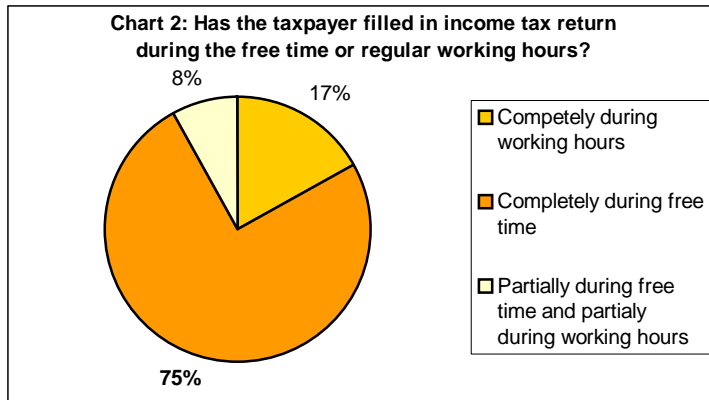
As in the most other surveys, there is a positive relationship between the time the taxpayer spends and the age: older people take more time, as expected (Gamma = 0.166,  $p < 0.01$ ).

There is also a positive relationship with the number of incomes (income sources), which is also consistent with similar surveys (Gamma = 0.255,  $p < 0.01$ ).

Taking into consideration the possibility of filling in a tax return during free time or working hours is one of the “methodological innovations” for this type of research (already stated in the previous chapter). It is taken into account that some people do the works related to their income tax return during their regular working time. As can be seen from the Chart 2, this does not represent a very serious problem<sup>43</sup> (assuming the honesty of the responses).

<sup>42</sup> It can be explained by the relative large amount of elderly people (especially women) in that class as well as more income sources, which are both positively correlated with the time spent.

<sup>43</sup> But, if we take into the consideration the fact that one sixth of the taxpayers does not have regular employment (wage), so that 16.66% automatically gave the answer «free time», the problem becomes a little bit more serious.



Time spent by somebody else is divided into the time of anybody else (besides the clerk of the tax administration) and the time of the clerk of tax administration.

The mean for the first group amounts to 0.85 hours. This time is considerably less than the time spent by the taxpayers who fill in income tax returns on their own, which is logically caused by the greater professional skills of unpaid helpers. It is also lower than the average time spent by tax-filers who use unpaid help, which is completely logical. The difference is explained by other tax compliance activities undertaken by the taxpayer.

The number of hours for the second group (clerk of the tax administration) is, of course, much smaller (mean = 0,40 hours), which is caused not only by their professional skills being the greatest, but also the fact that the taxpayers must have filled in all the necessary general data before they came to the tax administration office.

#### **4.2. Compliance costs per tax-filer**

In order to get to the total costs of compliance, time spent should be evaluated in monetary terms and fees paid and other money costs added.

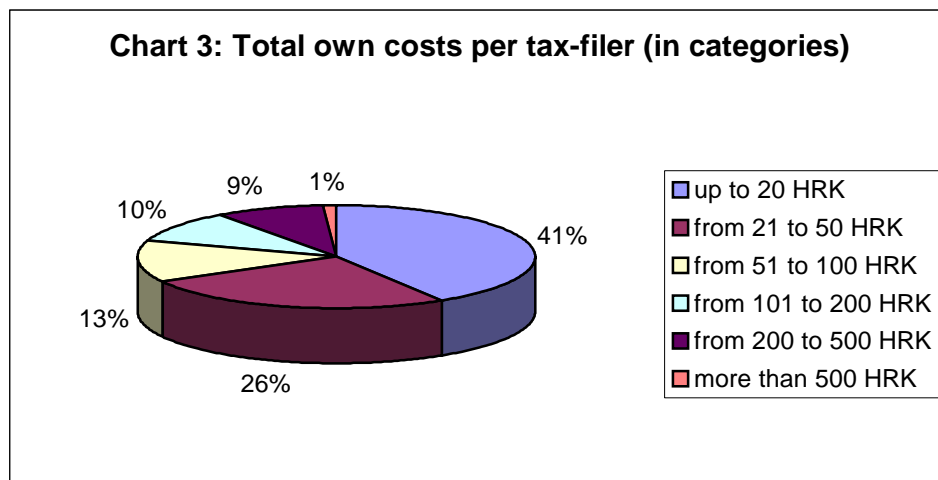
Since the institution of tax adviser in Croatia is still in the (very) early stage of development (in February 2002 there was still not one officially approved tax adviser), the fees of only six persons paid (before weighting) can hardly be taken into account to calculate any relevant average measure for such a costs. It can be only



stated for certain that such costs play a minor role in the tax compliance costs structure.

Money costs (other than paying somebody to fill in the form) comprise the necessary literature and instructions, costs of the form, photocopying of the receipts, postal costs, traveling expenses... Their mean is 15.47 HRK, but 28% of the tax-filers does not have any such costs at all (25.12% have costs up to 5 HRK, 17.01% higher than 5 HRK up to 10 HRK, 15.02% higher than 10 HRK up to 20 HRK, 11.83% higher than 20 HRK up to 50 HRK, and 3.02% higher than 50 HRK). If we exclude tax-filers who have no money costs, the mean for these one who have money costs rises to 22.31 HRK.

Total own costs (time costs, fees paid, other money costs) are on average 83.28<sup>44</sup> HRK, but more than 40% of tax-filers have costs up to one quarter of that amount (Chart 3).

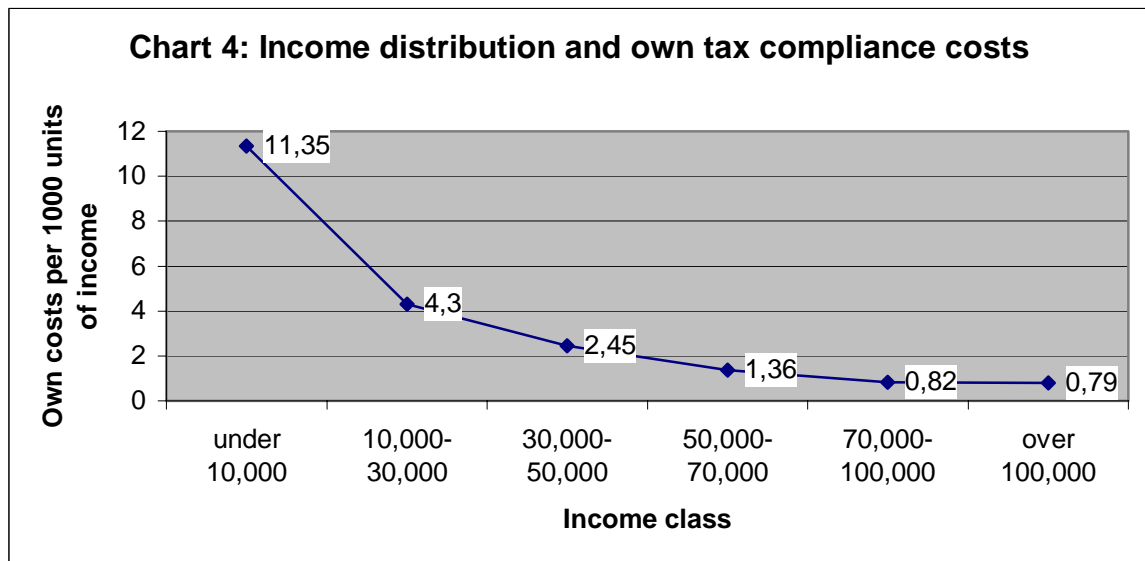


Since we took individually stated wage rates (which are more or less positively correlated with the earned income) to value the time spent on tax compliance, it is natural to expect that the own (tax-filer's) tax compliance costs will be positively correlated with income<sup>45</sup>. Our results indicate some positive, but weak relationship (Pearson = 0.136,  $p < 0.05$ ).

<sup>44</sup> Just to recall in order to get an insight into the value of that amount; the average net wage per hour is 19.77 HRK, as already stated.

<sup>45</sup> In surveys where the time valuation is in some way positively correlated with the taxpayer's income (for instance Vaillancourt, 1986; Bumenthal, Slemrod, 1992...) such an outcome is expected.

As it can be seen from the Chart 4 - these costs are also regressive, which is typical for this type of research. So, the “classical” regressivity hypothesis is confirmed in the case of Croatian income tax too.



Besides a positive relationship with the income level, there is also positive and statistically significant relationship with the number of incomes, which is completely logical and expected (Gamma = 0.303,  $p < 0.01$ ).

### 4.3. Psychological costs of tax compliance

There are some ways in which psychological costs could be assessed, although it is almost impossible to measure them directly. If taxpayers are asked to state their own value of the time spent on tax affairs, then the own time costs of tax compliance entail also the psychological costs (since the own valuation reflects anxiety and stress due to taxes) and it is impossible to distinguish between them. We have applied the “classical” direct method used by Sandford (1973; acc. to Sandford et al, 1989, p.38) and Slemrod and Sorum (1984, p.14). So, we have asked people how much they would be willing to pay to get rid of all the concerns and compliance costs of doing the income tax return. The Swedish study (Malmer, 1995, p. 242), for example, applied this only to the tax-filers that filled in their returns on their own. We decided to put the question to all the interviewees. This is justified by the fact that a lot of those who have external help cooperate actively with their helpers, as already stated.

Furthermore, as the used indirect method suggested<sup>46</sup>, it is the people who used external help (did not fill in on their own) that were a little bit more anxious after having submitted their tax return.

There is statistically significant relationship between the way of filling in tax return and the answer to the question «How did you feel after having submitted your income tax return?» (Chi-Square Test,  $p < 0.05$ ). A little bit more anxious were these tax-filers that did not fill in on their own. This can be connected also to the high level of self confidence of the taxpayers and suspicion concerning help of the others.

Taking into consideration the answers to the above question, it is obvious that the psychological cost is not high at all. Only 1.36 percent of the tax filers were disturbed and under a lot of pressure and more than two thirds were either indifferent or content, admitting that they had no difficulties. This is expected concerning the relatively little time devoted to tax affairs as well as the relatively simple form and the a bulk of taxes being already collected and registered by withholding.

Concerning the stated “classical” direct method the same unsuccessful result as with Sandford (1973; according to Sandford, Godwin and Hardwick, 1989) and Slemrod and Sorum (1984) was repeated. One third of the respondents did not answer the question at all and the another third stated «zero». The structure is similar for both groups of taxpayers concerning the way of filling in. It is obvious that the concept of cost compensation seems rather remote from most people's experience. Hardly any of the taxpayers that gave a positive answer stated an amount higher than the calculated total own costs. Although these results can be seen as disappointing and revealing a misunderstanding of the concept of compensation, they may again indicate low psychological costs.

#### **4.4. Total (aggregate) compliance costs and their structure**

When we aggregate the data at the level of the entire state, the total is around 56.857<sup>47</sup> million HRK. It is around 0.034% of GDP, 0.805% of personal income tax

---

<sup>46</sup> Some other indirect methods include for instance taxpayers' opinion regarding the time they devote to tax compliance, the aspects of tax compliance they dislike the most and conversational time occupied by the tax return (Diaz, Delgado, 1995, p.220-221; Delgado Lobo et al., 2001, p. 474)

<sup>47</sup> Rounded to three decimal points

revenues and 0.856% of personal income tax that is collected from individuals (non-business).

Such a small percentage<sup>48</sup> is the result not only of not all people having to file, but also of the relatively low costs, especially of time spent.

The structure of total costs is presented in Table 3.

Table 3: Structure of total compliance costs

<b>Sort of costs</b>	<b>Structure%</b>
Own time costs of tax-filers	55.93
Fees paid	9.61
Other money costs (money costs other than fees paid)	14.95
Other time costs 1: Unpaid help of tax administration clerks	0.47
Other time costs 2: Unpaid help of somebody else	19.04
Total	100.00

As can be seen from Table 3, a taxpayer's own time costs represent the biggest part of the costs, as expected. If we add the time costs of the unpaid helpers, the entire time costs comprise around three quarters of the total costs of compliance.

The unpaid help of tax administration clerks deserves special attention. It is in fact not part of the compliance, but of the administrative costs of taxation – it represents part of the compliance costs that has been shifted to the tax administration (administrative costs). In fact, this part is even bigger, because a lot of tax-filers submit their tax returns by post and some of them are filled in incorrectly. In the case of the developed institution of the tax advisor with relatively acceptable prices, some people who are inexperienced and are not well acquainted with any other person who could help them for free, could turn to the state approved tax advisor and that would mitigate such a shift.

The amount of total (aggregate) compliance costs could be further corrected to take into account cash flow benefits and costs. They arise from the taxes being underpaid or overpaid during the year. Under the same assumption as Evans et al.

<sup>48</sup> In comparison with the researches that also analyze individuals (non-business units) separately, as it is the case with Slovenia (Klun, 2002, p. 789) and Australia (Evans et al., 1997, p. 26), where these percentages are: for Slovenia: 0.13 for share in GDP and 1.99 for share in personal income tax revenues (authors own recalculation, because the original data were for the compliance costs augmented for cash flow costs) and for Australia: 0.34 for share in GDP and 4.0 for share in personal income tax revenues collected only from personal taxpayers (non-business). For the latter there was no recalculation needed because the social and taxpayers costs of compliance are almost the same.

(1997, p.22), the average interest rate is calculated as the midpoint between the average interest rate for short-term deposits of citizens-individuals (non-business sector) at the commercial banks (6.08%) and the average interest rate for short-term loans of commercial banks for citizens (18.19%). In the relevant year (second half of the 2001 and first half of the 2002) the averages of the 12 monthly interest rates on the yearly level were used ([www.hnb.hr](http://www.hnb.hr)). The duration period of one year was taken.<sup>49</sup> The bank interest received is not taxable in Croatia, so the average rate is 12.14%.

Since the total amount of tax debits for 2001 paid in the 2002 was 84,413,222 HRK, the cash flow benefit was 10,247,765 HRK.

The total amount that personal income tax individual (non-business) taxpayers have overpaid and that was returned by the tax authorities for 2001 (tax refund) in 2002 was much greater – 603,708,115 HRK<sup>50</sup>. After the multiplication with the interest rate, we arrive at the cash flow cost of 73,290,165 HRK. The difference represents a net cash flow cost of 63,042,400 HRK, which is very much in comparison with the compliance costs - even higher than the actual compliance costs.<sup>51</sup> This can be partly explained by the relatively low tax compliance costs per taxpayer, but also by the already explained fact, that it is mostly people who are entitled to a tax refund that submit a tax return. The third reason is the relatively high interest rate. If we apply only the average interest rate for short term deposits of citizens (individuals – non business) at commercial banks, which amounts to only half of the taken rate (6.08% in comparison with the 12.14%), this amount is also halved. It falls to 31,521,200, which amounts around 55% of aggregate compliance costs.<sup>52</sup>

Some authors (for instance Johnston, 1963 (according to Tran-Nam et al., 2000, p.233), Allers, 1994, p. 40 and especially Evans et al. (1997, p.12) and Tran-Nam et al. (2000, p. 233-236) argue that tax deductibility should also be taken into

---

<sup>49</sup> There is no time difference between income receipt and payment of tax; most of the tax refunds or debits are paid between the beginning of May and end the of July or even the beginning of August, and as usual, it was supposed that the incomes were earned and overpayments and underpayments made constantly during the year; so the middle of the 2001 was used as the starting point of the cash flow benefit/cost period.

<sup>50</sup> Data provided by the Tax Administration (Revenue Service) of Croatia

<sup>51</sup> In contrast with other surveys, which have also analyzed individuals (non-business units) separately, as is the case with Slovenia (Klun, 2002, p. 789) and Australia (Evans et al., 1997, p. 26) and calculate cash flow costs and benefits. In the former research these costs amount 40% of «social» compliance costs and in a latter case only 13% (authors own recalculation).

<sup>52</sup> This is much closer to the already stated case of Slovenia, where an interest rate of 9.9% is applied (which refers only to sight deposits).

account as the offsetting benefit to the “gross” or “social compliance costs” in order to get to the truly “net”<sup>53</sup> or better to say “taxpayer compliance costs”. The stated group of taxpayers has no tax deductibility benefits, because in Croatia individual (non-business) personal income tax filers cannot deduct the compliance costs of filing the personal income tax or some part of them.

So, taking into account only cash flow costs and benefits we arrive at the total “taxpayer compliance cost” of around 119.899 million HRK. This is about 0.07% of GDP, 1.70% of personal income tax revenues and about 1.80% of personal income tax revenues collected from individuals (non-business)<sup>54</sup>. Applying the interest rate for only short-term deposits in the calculation of cash flow costs/benefits, this amount shrinks to 88.378 million HRK, which amounts 0.052% of GDP, 1.25 % of personal income tax revenues and about 1.33% of personal income tax revenues collected from individuals (non-business).

## 5. Conclusion

Compliance costs of personal income tax for individuals (non-business) in Croatia are relatively low. “Social” compliance costs are around 0.034% of GDP and 0.856% of the personal income tax that is collected from individuals. The biggest part of them consists of own time costs (56%), followed by unpaid help (19%) and money costs (15%) “Taxpayer” compliance costs are higher due to the cash flow costs, because most taxpayers submit their tax return in order to get a tax refund. These costs are between 0.07% and 0.052% of GDP and 1.80% and 1.33% of relevant tax revenues, depending on the interest rate chosen.

The reason for the compliance costs, especially social compliance costs being so low lies not only in the fact that most tax revenues are collected by the final withholding tax, but also in the fact that the average time spent per taxpayer is lower than in most other countries (1.7 hours). The use of unpaid help is widespread (around two thirds). On the other hand, paid external help is almost negligible.

---

<sup>53</sup> The term «net compliance costs» is usually used when only cash flow benefits (and costs) are taken into account, but is also a little bit inappropriate when cash flow costs outweigh cash flow benefits, so that the «net» costs are higher than the «gross costs».

<sup>54</sup> Still below the comparable figures for Slovenia and Australia.

There are some statistically significant relationships established concerning taxpayer characteristics. Younger women mostly engage somebody else and elderly women fill in more on their own. As the education level rises, the percentage of people who fill in on their own rises too. Older people use more time than the younger one. There is also a positive relationship between time and number of incomes. There is a positive relationship between own compliance costs and the level of income as well as the number of incomes.

The classical regressivity hypothesis of these costs is confirmed here too.

The psychological costs seem to be low in general and a little bit higher if external help is used.

## REFERENCES

- Allers, M. (1994), *Administrative and Compliance Costs of Taxation and Public Transfers in the Netherlands*, Groningen: Woltersgroep.
- Blumenthal, M. and Slemrod J. (1992), *The compliance cost of the U.S. individual tax system: a second look after tax reform*, National Tax Journal, vol. 45, no.2, pp. 186-202.
- Blumenthal, M. and Slemrod J. (1995), Recent Tax Compliance Costs Research in the United States, in: Sandford, C. (ed.), *Tax Compliance Costs Measurement and Policy*, Bath, UK, Fiscal Publications.
- Central Bureau of Statistics (2002), *Monthly Statistical Report*, Nr. 5, Year 10.
- Diaz, C. and Delgado M. L. (1995), The Compliance Costs of Personal Income Tax in Spain, in: Sandford, C. (ed.), *Tax Compliance Costs Measurement and Policy*, Bath, UK, Fiscal Publications, pp. 210-225.
- Delgado Lobo, M. L., Salinas-Jimenez J. and Sanz Sanz, J. F. (2001), Hidden Tax Burden of the Personal Income Tax: Evidence from the Recent Tax Reform in Spain, *Australian Tax Forum*, vol.16, 2001, pp. 463-482.
- Evans, C., Ritchie K., Tran-Nam B., Walpole M. (1997), *Taxpayer Costs of Compliance*, ATAX, UNSW.
- Evans, C., Ritchie, K., Tran-Nam, B. and Walpole, M. (1998), Taxation Compliance Costs: Some Recent Empirical Work and International Comparisons, *Australian Tax Forum*, vol. 14, pp. 93-122.
- Evans, C., Pope J. and H. John (ed.) (2001), *Tax Compliance Costs: A Festschrift for Cedric Sanford*. St Leonards, Australia Prospect Media Pty Ltd.
- Institute for Private Enterprise and Democracy, Poland, Institute for Market Economics, Bulgaria, Institute for Liberal Studies, Slovakia (1998), *Needs for Deregulation of the Tax Systems in Central Europe: A Comparative Study*.
- International Tax Compliance Costs Symposium*, 26 to 27 April 2000, Australian Taxation Studies Program (ATAX), Faculty of Law, The University of New

- South Wales, Sydney, Australia, later issued in: C. Evans, J. Pope and H. John (ed.) (2001), *Tax Compliance Costs: A Festschrift for Cedric Sanford*, Prospect Media Pty Ltd.
- Klun, M. (2002.), Troškovi ispunjavanja porezne obveze u Sloveniji, *Financijska teorija i praksa*, vol.26, no. 4, pp. 775-792.
- Malmer, H. (1995.), The Swedish Tax Reform in 1990-1991 and Tax Compliance Costs in Sweden, in: Sandford, C. (ed.), *Tax Compliance Costs Measurement and Policy*, Bath, UK, Fiscal Publications.
- Ott, K. and Bajo A. (2001), *Compliance costs in transitional economies: the Croatian experience*, in: C. Evans, J. Pope and H. John (ed.), *Tax Compliance Costs: A Festschrift for Cedric Sanford*, Prospect Media Pty Ltd and also in: *International Tax Compliance Costs Symposium*, 26 to 27 April 2000, Australian Taxation Studies Program (ATAX), Faculty of Law, The University of New South Wales, Sydney, Australia.
- Pope, J., and Fayle R. (1990), The compliance costs of personal income taxation in Australia 1986/87: empirical results, *Australian Tax Forum*, vol. 7, no.1, pp. 85-126.
- Pope, J., The Compliance Costs of Major Taxes in Australia (1995), in: Sandford, C. (ed.): *Tax Compliance Costs Measurement and Policy*, Bath, UK: Fiscal Publications.
- Sandford, C.T., Godwin M. R., Hardwick P.J.W. and Butterworth M.I. (1981), *Costs and Benefits of VAT*, London: Heinemann Educational Books.
- Sandford, C., Godwin M. and Hardwick P. (1989), *Administrative and Compliance Costs of Taxation*, Bath, UK: Fiscal Publications.
- Sandford, C., (ed) (1995), *Tax Compliance Costs Measurement and Policy*,č Bath, UK: Fiscal Publications.
- Slemrod, J. and Sorum N. (1984.), *The Compliance Cost of the U.S. Individual Income Tax System*, Working Paper No. 1401, National Bureau of Economic Research, Cambridge, MA, USA.
- Tran-Nam, B., Evans C., Ritchie K. and Walpole M. (2000), *Tax Compliance Costs: Research Methodology and Empirical Evidence from Australia*, National Tax Journal, Vol. III, No.2, pp. 229-252.
- Vaillancourt, F. (1989), *The administrative and compliance costs of the personal income tax and payroll tax system in Canada 1986*, Canadian Tax Paper, No. 86.
- www.hnb.hr